PUB-NO: GB002170795A
DOCUMENT-IDENTIFIER: GB 2170795 A
TITLE: Composite mulch
PUBN-DATE: August 13, 1986

INVENTOR-INFORMATION:

NAME	COUNTRY
DE, MONTJOIE RUDOLF	N/A
ANTHONY	

ASSIGNEE-INFORMATION:

NAME	COUNTRY ASSIGNEE-INFORMATION:
MONTJOIE RUDOLF ANTHONY	N/A DE

APPL-NO: GB08503313
APPL-DATE: February 8, 1985

PRIORITY-DATA: GB08503313A (February 8, 1985)

INT-CL (IPC): A01G009/10
EUR-CL (EPC): A01G013/02 , C05F003/00 , C05F011/00 , C09K017/52
US-CL-CURRENT: 47/9

ABSTRACT:

A composite mulch is made from cellulose fibre and lignin, a solid fertilizer which will only release its nutrient content slowly, a weed suppressant which will only kill seeds as they germinate, shredded or pulverized bark, and peat in the preferred but not essential proportions, by weight, 23.50%, 30.00%, 1.50%, 30.00% and 15.00% respectively. The cellulose fibre and lignin may be made from waste newspapers, magazines, books, cardboard or kraft paper. The solid fertilizer may be chemical of the "controlled release" type or may be organic fertilizer made from rotted (composted) waste from poultry rearing deep-litter houses; crushed feathers or bones or heads or feet of poultry; cow or horse manure and the incorporated bedding material from cow-sheds or stables; said waste being milled into small fragments or particles and dried. The aforementioned constituents are mixed together and incorporated as uniformly as possible.

(12) UK Patent Application (19) GB (11) 2 170 795 A

(43) Application published 13 Aug 1986

(21) Application No 8503313

(22) Date of filing 8 Feb 1985

(51) INT CL[4]
A01G 9/10

(52) Domestic classification (Edition H):
C1B BE

(56) Documents cited
GB A 2113517

(58) Field of search
C1B
Selected US specifications from IPC sub-class C05F

(71) Applicant
Anthony de Montjoie Rudolf,
The White House, Station Road, Dorrington,
Shrewsbury SY5 7LH

(72) Inventor
Anthony de Montjoie Rudolf

(74) Agent and/or Address for Service
Anthony de Montjoie Rudolf, The White House, Station Road, Dorrington, Shrewsbury SY5 7LH

(54) Composite mulch

(57) A composite mulch is made from cellulose fibre and lignin, a solid fertilizer which will only release its nutrient content slowly, a weed suppressant which will only kill seeds as they germinate, shredded or pulverized bark, and peat in the preferred but not essential proportions, by weight, 23.50%, 30.00%, 1.50%, 30.00% and 15.00% respectively. The cellulose fibre and lignin may be made from waste newspapers, magazines, books, cardboard or kraft paper. The solid fertilizer may be chemical of the "controlled release" type or may be organic fertilizer made from rotted (composted) waste from poultry rearing deep-litter houses; crushed feathers or bones or heads or feet of poultry; cow or horse manure and the incorporated bedding material from cow-sheds or stables; said waste being milled into small fragments or particles and dried. The aforementioned constituents are mixed together and incorporated as uniformly as possible.

GB 2 170 795 A

SPECIFICATION

Composite mulch

This invention relates to a composite mulch.

Flower, vegetable, shrub and tree growers have used various types of mulch, such as farmyard manure, straw, peat, compost, grass cuttings, sawdust, bark and black polythene sheet to control weeds by smothering them, and to assist plant growth by conserving moisture, keeping the roots cool and supplying nutrients as the material decomposes. They all have one or more inherent disadvantages in that they are malodourous, unsightly, unhygienic, lack nutrients or have to be used in large quantities to be effective.

The principal object of the present invention is to provide a mulch that is free from the aforementioned disadvantages.

Accordingly, the present invention consists of a composite mulch which comprises a solid fertilizer, which only disperses slowly, a weed suppressant, peat, and shredded or pulverized bark, all of said fertilizer, said weed suppressant, said peat and said bark being incorporated in a cellulose fibre and lignin binder. Said weed suppressant should be of the pre-emergence residual type of herbicide that is only effective against freshly germinated weed seeds, and is not harmful to established plants. Said solid fertilizer may be either wholly organic or a chemical "controlled release" or encapsulated fertilizer.

It has been found that a composite mulch according to the invention is far more efficient than existing mulches discussed in the second paragraph of this description because the composite mulch need only be spread to a thickness of five millimetres instead of at least twenty millimetres for existing mulches. The weed suppressant effectively kills any weed seeds as they germinate and because the fertilizer is maintained in an evenly dispersed condition in the composite mulch, it releases nutrients evenly to existing plants.

It is at present considered that the following percentages by weight, give a satisfactory composition from which a composite mulch according to the present invention can be made :-

Cellulose fibres and lignin	from 10% to 80% but preferably 23.50%
Fertilizer	from 10% to 60% but preferably 30.00%
Peat	from 10% to 60% but preferably 15.00%
Bark	from 10% to 60% but preferably 30.00%
Weed suppressant	from 0.1% to 10% but preferably 1.50%

The organic fertilizer which is mentioned by way of example and which has been used so far, with excellent results, is waste material from deep litter houses in which poultry are intensively reared. This waste is wood shavings and poultry manure; this is allowed to rot down or compost for about one to three months, and is then milled into small fragments and particles and dried. Solid chemical fertilizers are, however, available which are of a so called "controlled release" or encapsulated kind and it is thought that these could be used instead of, or to supplement, a wholly organic fertilizer with excellent results.

The fertilizer is then mixed with the peat, bark, and weed suppressant and is incorporated as uniformly as possible into the mass of cellulose fibres and lignin binder obtained from waste newspapers, magazines, books, cardboard or kraft paper by suitable treatment. In one form, said suitable treatment is by passing the said materials through a suitable hammer mill and granulator to break them down into a fibrous mixture.

When required for use the composition can be spread evenly over the surface to be mulched and then saturated by spraying water gently over it. Another method of application is to mix the composition with sufficient water to form a pulp. This pulp is then spread, or sprayed, evenly on the surface to be mulched. The water will drain and evaporate from the pulp to leave a mulch having all the advantages of this present invention.

According to a further method of carrying the invention into effect the dry composition is formed into compressed pellets of 2mm to 6mm in diameter. Said pellets are then spread evenly over the surface to be mulched and are soaked with water from a suitable appliance to bed them down and to activate the ingredients in the composite mulch.

The composite mulch may be pigmented, either by the inclusion of a pigment added to the dry composition, or by addition of a pigment when the composition is pulped with water.

According to a further method of carrying the invention into effect a fibrous sheet material is manufacture from the composition on a paper making machine. The fibrous sheet material can then be laid on the surface to be mulched, and dampened with water to become malleable and conform to the contours of the surface on which it has been laid.

According, therefore, to a further aspect of the present invention a method of sowing seeds comprises the steps of forming a pulp from the composition comprising said cellulose fibres and lignin, said fertilizer, said peat and said bark to the percentages by weight given above, but excluding the weed suppres-

sant. To this pulp the seeds to be sown are added and mixed thoroughly. This pulp can be spread, or sprayed, onto the surface where the seeds are to grow.

It has been found by using this method of sowing that the seeds are bound in place by the cellulose fibres in the composition and are maintained in an evenly dispersed condition as the seeds cannot be blown away by the wind as happens with the existing sowing system of mixing seeds with poultry manure.

According to a further method of carrying the invention into effect a fibrous sheet material is manufactured on a paper making machine from the composition comprising said peat, said bark, said fertilizer and said cellulose fibres and lignin, and the seeds that are to be sewn. The fibrous sheet material can then be laid on the surface where the seeds are to be grown; dampened with water to become malleable and conform to the contours of the soil on which the fibrous sheet material has been laid.

It has been found that where a more aerated texture to the composite mulch is required, this can be achieved by adding a suitable foaming agent to the composition. It has further been found that by adding a suitable surfacant to the composition this improves the adhesion of the material when positioned in place before dry. It has further been found that the water retention properties of the mulch can be considerably enhanced by adding water absorbing polymers.

The preferred source, at present, of the cellulose fibres and lignin is old newspapers, which are fairly easy to buy in suitably large quantities. An alternative source of these materials is waste magazines, books, cardboard, kraft paper, and other sources (such for example as straw) may be found eventually.

Horse, cow or pig manure with, or without, the usual additional straw or other bedding material would also be suitable as the organic fertilizer.

CLAIMS

1. A composite mulch which comprises a solid fertilizer which will only release its nutrient content slowly, a weed suppressant which will only kill seeds as they germinate, peat, shredded or pulverized bark and a cellulose fibre and lignin made from waste newpapers, magazines, books, card board or kraft paper; said solid fertilizer, said weed suppressant, said peat, said shredded or pulverized bark and said cellulose fibre and lignin all being mixed into an evenly dispersed composition.

2. A composite mulch as claimed in Claim 1 wherein the solid fertilizer is wholly organic.

3. A composite mulch as claimed in Claim 1 wherein the solid fertilizer is a chemical "controlled release" or encapsulated fertilizer.

4. A composite mulch as claimed in Claim 1 wherein the solid fertilizer content comprises a mixture of a wholly organic fertilizer and a chemical fertilizer.

5. A composite mulch as claimed in any of the proceeding claims wherein the constituent materials are present in the following percentages by weight, namely

Cellulose fibres and lignin	from 10% to 80%
Fertilizer	from 10% to 60%
Peat	from 10% to 60%
Bark	from 10% to 60%
Weed suppressant	from 0.1% to 10%

6. A composite mulch as claimed in Claim 5 wherein the preferred percentages by weight are

Cellulose fibre and lignin	23.50%
Fertilizer	30.00%
Peat	15.00%
Bark	30.00%
Weed suppressant	1.50%

7. A composite mulch as claimed in Claim 2 or as claimed in Claim 5 when appended to Claim 2, wherein the organic fertilizer is waste material from deep litter houses in which poultry are intensively reared.

8. A composite mulch as claimed in Claim 7 wherein said waste material is essentially wood shavings and poultry manure which are allowed to rot down or compost for about one to three months and which are then milled into small fragments or particles and then dried.

9. A method of making a composite mulch which comprises a solid fertilizer which will only release its nutrient content slowly, a weed suppressant which will only kill seeds as they germinate, peat, shredded or pulverized bark, and a cellulose fibre and lignin, said method comprising the following steps, namely :

a) defibring newspapers, magazines, books, cardboard or kraft paper into individual fibres or small clumps of fibres.

b) mixing said indiviudal fibres or small clumps of fibres with said solid fertilizer, said peat, said bark and said weed suppressant until they are dispersed as uniformly as possible.

10. A method as claimed in Claim 9 in which the newspapers, magazines, books, cardboard or kraft paper are defibred before mixing with said solid fertilizer, said weed suppressant said peat and said bark by passing said newspapers, magazines, books, cardboard or kraft paper through a suitable granulator and hammer mill.

11. A method as claimed in Claim 9 or Claim 10 wherein the solid fertilizer is a wholly organic fertilizer which is treated in the following manner :

a) allowing waste material obtained from deep litter houses in which poultry are intensively reared to rot down or compost.

b) milling said rotted or composted waste material into small fragments or particles.

c) drying said milled material

d) incorporating the milled and dried material as uniformly as possible with cellulose fibre and lignin, peat, bark and weed suppressant; the relative proportions by weight of the constituents being kept as follows :

Cellulose fibre and lignin	from 10% to 80% but preferably 23.50%
Fertilizer	from 10% to 60% but preferably 30.00%
Peat	from 10% to 60% but preferably 15.00%
Bark	from 10% to 60% but preferably 30.00%
Weed suppressant	from 0.1% to 10% but preferably 1.50%

12. A composite mulch as claimed in any of the preceding claims wherein the composition is formed into compressed pellets from 2mm to 6mm in diameter.

13. A composite mulch substantially as hereinbefore described.

14. A method of making a composite mulch as claimed in Claim 13 substantially as hereinbfore described.

15. A composite mulch as claimed in any of the preceding Claims wherein the composition is diluted with water and manufactured into a fibrous sheet material by the use of a paper making machine.

16. A composite mulch as claimed in Claim 1 wherein the weed suppressant is excluded and seeds are incorporated.

17. A composite mulch as claimed in Claim 16 wherein the composition is diluted with water and manufactured into a fibrous sheet material by the use of a paper making machine.

18. A composite mulch as claimed in Claim 1 or Claim 16 wherein a suitable foaming agent is incorporated.

19. A composite mulch as claimed in Claim 1, Claim 16 or Claim 18 wherein a suitable surfactant is incorporated.

20. A composite mulch as claimed in Claim 1, Claim 16, Claim 18 or Claim 19 wherein water absorbing polymers are incorporated.

21. A composite mulch as claimed in Claim 1, Claim 12, Claim 16, Claim 18, Claim 19 or Claim 20 wherein a pigment is incorporated.

Printed in the UK for HMSO, D8818935, 6/86, 7102.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.